



06/25/04

APC 3752 61
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THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:)
Richard W. Parod et al.)
Serial No.: 09/848,665)
Filed: May 3, 2001)
Group Art Unit: 3752)
Examiner: Christopher S. Kim)
For: MOBILE IRRIGATION MACHINE)
WITH UNDERGROUND WATER)
APPLICATION)

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Joel H. Bock
Reg. No. 29,045

Mail Stop Appeal Brief
Commissioner for Patents
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

(1) REAL PARTY IN INTEREST

The real party in interest in this appeal is Lindsay Manufacturing Co., assignee of the invention claimed in the above referenced application, which assignment was recorded in the

United States Patent and Trademark Office at Reel No. 011815 and Frame No.0463 on May 3, 2001.

(2) RELATED APPEALS AND INTERFERENCES

None.

(3) STATUS OF CLAIMS

Claims 1-32, 37, 48 and 49 are withdrawn as directed to a non-elected invention. Claims 33, 36, 38-45 and 50 are rejected. Dependent claims 34, 35, 46 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants appeal the rejection of claims 33, 36, 38-45 and 50. Applicants further appeal the withdrawn status of claims 37, 48 and 49 which depend from the rejected claims.

(4) STATUS OF AMENDMENTS

No amendments were filed after final rejection.

(5) SUMMARY OF INVENTION

This invention is generally directed to a mobile irrigation machine. Conventional irrigation systems have a main pipeline supported at intervals by mobile towers and connected to a water supply (specification, paragraphs 2 and 25). Water is emitted from spray nozzles that are connected either directly to the main pipeline or to drop tubes that are connected to the main pipeline. One of the problems in prior art irrigation systems is evaporation losses as water is emitted as a spray from the nozzles. Obviously, water lost due to evaporation is not available to irrigate a crop's root zone.

Applicants' claimed irrigation assembly reduces evaporation losses (Paragraph 3, lines 1-6; paragraph 4, lines 1-4). In particular, applicants disclose an irrigation assembly or machine 10 comprising a main pipeline 12 which is connected to a water supply (paragraph 25, lines 1-2).

The main pipeline 12 is typically supported at intervals by mobile towers 14 (paragraph 25, lines 3-4). Figures 1 and 2 illustrate the main pipeline 12 made of individual pipe sections connected to one another and supported by mobile towers 14. Each tower has a drive motor 16 for propelling the tower across a field. The irrigation assembly 10 also has a plurality of drop tube assemblies, indicated generally at 17 in Figures 1 and 2, connected to the main pipeline at spaced intervals and extending downwardly from the main pipeline 12 (paragraph 26, lines 1-3).

Examples of drop tube assemblies are shown in Figures 3, 4, 6, 7, 10, 11, 12 and 14. Each drop tube assembly 17 includes a drop tube 18, a pressure regulator 20 and a nozzle 22 (paragraph 26, lines 3-5).

Applicants' invention further includes a plurality of stationary troughs which are positioned on the ground to receive the water from the drop tube assemblies (paragraph 43, lines 5-10; paragraph 47, lines 1-4). In Figures 12-14, the troughs are shown at 86 and 90. The troughs are each positioned at least partially above the surface of the ground and at least partially within the paths of the drop tubes for receiving water from the drop tube assemblies, as shown in Figures 12-14. Each of the troughs in Figures 12-14 shows at least one wall which is adapted to engage a surface of the ground. Each trough further defines a fluid passageway therethrough so that water deposited on one side of the wall flows through the passageway to a location on the other side of the wall and into the ground.

By way of example, Figures 12-14 show examples of shapes of troughs of the present invention. Figures 12 and 13 show a trough 86 having a circular wall with an opening or slot 88 in the top portion. Figure 14 shows an alternate trough 90 shape having a planar wall in contact with the ground (paragraph 47, lines 1-4). It is contemplated that applicants' trough may also have other shapes (paragraph 47, line 1). Each trough has a plurality of underground drains 92 adapted for penetrating the ground (paragraph 44, lines 1-4). The drains are located at spaced locations along the trough. One drain 92 is shown in Figures 12 and 14 and at least two drains are shown in Figure 13. Each drain 92 defines at least one opening. This opening defines at least a portion of a fluid passageway through the trough for permitting water flow through the trough. Each underground drain has an inlet in fluid communication with the trough and at least one outlet located within the ground. In particular, each underground drain has an inlet at a top end 94, sides 96 and a bottom end 98 (paragraph 44, last 4 lines).

The trough in one embodiment is in the form of a pipe. A weir 93 may be mounted in the pipe for controlling water flow therein. Examples of the weir or dam 93 are shown in Figures 12 and 13 (paragraph 44, lines 14-26).

In another embodiment of the invention the irrigation assembly includes a plurality of water receiving receptacles. These may be the plurality of stationery targets or dishes 38 and 66 shown in Figures 1-11 or the troughs 86 and 90 shown in Figures 12-14. Each of the plurality of water receiving receptacles, dishes and troughs are adapted to engage the surface of the ground, as shown in Figures 3-14 (paragraph 31, lines 1-4; paragraph 38; lines 7-8; paragraph 43, lines 5-6; paragraph 47, lines 1-4). Each dish or trough clearly defines a water receiving receptacle which receives water from the drop tube assembly.

Further, each of these water receiving receptacles has at least one wall that defines part of its shape. For example, in Figures 3-5, 10 and 11, the dish 38 includes a conical shaped side 41. In Figures 6-9, the dish 66 is shown having a substantially rectangular shape with four side walls and one bottom wall and, thus, the dish 66 also includes at least one wall. Likewise in Figures 12-14, each of the troughs includes at least one wall having either a circular or planar shape. Each of the dishes 38 and 66 and the troughs 86 and 90 in Figures 3-14 define at least one fluid passageway therethrough which permits water to flow from the water receiving receptacle into the ground.

Each water receiving receptacle further includes at least one underground drain which is adapted for penetrating the ground. In Figures 3-5, the dish 38 includes an underground drain 42 (paragraph 31, lines 4-5). In Figures 6-9, the underground drain comprises that portion of the dish 66 which is located within the ground 24 (paragraph 38, lines 7-8). In Figures 12-14, each of the troughs includes at least one underground drain 92 (paragraph 44, line 1). The structure of each drain defines at least one opening. The opening of the drain defines at least a portion of the fluid passageway through the water receiving receptacle.

As shown in Figures 3-5, the drain 42 may have a plurality of holes or perforations 46 within the ground (paragraph 31, lines 7-8). As shown in Figures 6-9, the corresponding drain for the dish 66 includes a plurality of holes 72 to define least one outlet located within the ground (paragraph 38, line 11). In Figures 12-14, each underground drain 92 includes at least one outlet which may be defined by one of the perforations of holes 100 positioned at the sides 96 or which may be defined by an opening at the bottom end 98 or which further may be defined by both (paragraph 45, last 4 lines).

In all embodiments of the invention evaporation losses are reduced because the water emitted from a nozzle into a collection device which has a drain that penetrates the ground. Water is supplied directly to the root zone rather than indirectly through seepage from the surface of the ground.

(6) ISSUES

- (A) Whether claim 33 is obvious under 35 USC 103(a) over U.S. Patent 4,676,438 to Sesser ("Sesser '438") in view of U.S. Patent No. 632,795 to Stoddart ("Stoddart '795").
- (B) Whether claim 45 is obvious under 35 USC 103(a) over Sesser '438 in view of Stoddart '795.
- (C) Whether claim 34 should be allowable for another reason over Sesser '438 in view of Stoddart '795.
- (D) Whether claim 46 should be allowable for another reason over Sesser '438 in view of Stoddart '795.
- (E) Whether claim 41 is obvious under 35 USC 103(a) over Sesser '438 in view of Stoddart '795.
- (F) Whether claim 44 is obvious under 35 USC 103(a) over Sesser '438 in view of Stoddart '795.
- (G) Whether claim 33 should be considered a generic claim such that claim 37 should not have been withdrawn as directed to a non-elected invention.

(H) Whether claim 45 should be considered a generic claim such that claims 48 and 49 should not have been withdrawn as directed to a non-elected invention.

(7) GROUPING OF CLAIMS

Claims 33-50 do not stand or fall together. Each of claims 33, 34, 35, 41, 44, 45, 46 and 47 are separately patentable, with dependent claims 34, 35, 46 and 47 already being indicated as allowable if rewritten. Claims 33 and 45 are the only independent claims and dependent claims 34-44 and 46-50 depend either directly or indirectly from claims 33 and 45, respectively.

(8) ARGUMENT

(A) Claim 33 is not obvious under 35 USC 103(a) over U.S. Patent 4,676,438 to Sesser ("Sesser '438") in view of U.S. Patent No. 632,795 to Stoddart ("Stoddart '795").

In the Final Office Action dated March 26, 2004, claims 33, 36, 38, 39, 40-45 and 50 were rejected under Section 103(a) as being unpatentable for obviousness over the combination of Sesser 4,676,438 and Stoddart 632,795. On pages 2-3 of the Final Office Action, the Examiner states that Sesser '438 teaches all the limitations of the claimed invention with the exception of the trough having a plurality of underground drains and a weir. The Examiner combines Sesser '438 with Stoddart '795 to explicitly disclose a trough, as required by claim 33. The Examiner states that the combination of Sesser '438 and Stoddard '795 discloses a plurality of underground drains and a weir. Applicants respectfully submit that this rejection is not supported by the cited references.

Sesser '438 and Stoddart '795 Are Not Properly Combinable

Applicants respectfully submit that the respective structures, purposes and functions of Sesser '438 and Stoddart '795 do not support any combination. In fact, these references teach away from any combination to achieve the irrigation assembly of claim 33. As explained below, an objective understanding of each reference teaches away from such combination.

It is first helpful to understand the irrigation assembly disclosed in Sesser '438. In Sesser '438, the irrigation assembly does not define any structure for a trough. Sesser discloses furrows dug into the ground by a plow. These furrows are part of the ground itself. Such furrows do not define any structure which is positioned at least partially above the surface of the ground. Sesser's furrows further do not have at least one wall which is adapted to engage a surface of the ground, in contrast to claim 33. The walls of Sesser's furrow cannot engage a surface of the ground because the furrow walls are formed by the ground itself and thus the ground cannot engage itself.

Sesser '438 clearly does not disclose or suggest the features of claim 33 because Sesser lacks a structure for a trough apart from the ground. In the Final Office Action, the Examiner concedes that Sesser '438 does not disclose a trough, as recited in claim 33. (Final Office Action, page 2). In fact, adding a trough to Sesser '438 is contrary to its teachings. Sesser's assembly is used to irrigate the ground directly to limit water loss due to evaporation (Col. 1, lines 45-53). Sesser describes the advantage of reducing evaporation loss by application of "water directly into furrows" (see Col. 1, lines 35-45). The placement of additional structures on top of the furrows would not allow the application of "water directly into furrows." Thus, Sesser's teachings actually discourage any intervening structures between the spray head of the drop tube and the furrows, in contrast to claim 33. No structures are suggested by Sesser '438

between the ground and Sesser's 438 assembly because Sesser, unlike applicants, teaches that direct water application to the ground can reduce evaporation loss. In this regard, Sesser '438 teaches away from any additional structure being positioned at least partially above the ground to receive the water and having at least one wall which is adapted to engage a surface of the ground, as called for in claim 33.

Stoddart '795 is relied upon in combination with Sesser '438 to show obviousness, but an understanding of Stoddart '795 also teaches that these references are not properly combinable. Applicants respectfully submit that any purported combination must improperly rely on hindsight derived from the present application. In the rejection, applicants' claimed invention is improperly being used as a blueprint to pick and choose among isolated prior art references and reconstruct the claimed invention. With applicants' claimed invention as a blueprint, Sesser '438 is being used to teach the claimed irrigation assembly, except for a trough, and Stoddart '795 is being used to teach a trough. In the absence of the written description in the present application, there is no suggestion in the prior art to warrant the combination of these references.

On page 3 of the Final Office Action, under "Response to Argument", the Examiner presumes that Stoddart '795 discloses a trough having the features as recited in claim 33:

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 658 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Stoddart teaches, in lines 9-12, to use his device to distribute liquids in fine streams or drops.

Applicants respectfully submit that the Examiner's comments are an oversimplification and do not provide a complete understanding of Stoddart '795 and its teachings.

In Stoddart '795, a liquid distributor is described for use essentially as a mixing basin. Stoddart's distributor is little more than a chemist's tool for mixing liquids. The distributor provides absolutely no flow through its structure. Importantly, the distributor has pegs b which are completely closed at the bottom of the distributor. There is no way for any liquid to flow through the distributor. The pegs b are closed at their bottom edges and thus do not provide any outlet for liquid flow. Liquid must enter and exit through the opening at the top. As a result, liquids are only distributed from Stoddart's distributor only by overflowing the top of the vessel

- a. Any liquid below the top edge of the distributor remains in the distributor because it cannot flow out the bottom of the distributor.

There simply is no suggestion or teaching in Sesser '438 or Stoddart '795 that would logically lead one to combine the distributor of Stoddart '795 with the furrow irrigation system of Sesser '438 to reach the present invention. The distributor structure of Stoddart '795 is a fundamentally different type of structure from that used in the irrigation assembly of the present invention. Stoddart's distributor has different objectives, different design criteria, and is for a different application in an entirely different industry. One skilled in the field of agricultural irrigation would not combine or attempt to combine the features of Stoddart '795 with Sesser '438. It is respectfully submitted that it is only with the improper use of hindsight, employing the present application as a blueprint or road map, that such a combination is even conceivable. As the Federal Circuit has made clear, however, obviousness cannot be based on combining isolated

elements from various references where there is otherwise no teaching or suggestion of such a combination.

In fact, each reference discourages any such combination. Sesser's furrow irrigation system clearly teaches away from any structure apart from the furrows in the ground for receiving water. Throughout Sesser's specification, water conservation is emphasized as a key objective in agricultural irrigation. As compared to Sesser's teachings, Stoddart '795 is completely unsuitable for use in agricultural irrigation. Stoddart's distributor would only irrigate crops if enough liquid was deposited to overflow the top of the distributor. Clearly, the distributor must be fully filled before even one drop of water will flow over the top of the distributor to the ground. All liquid remaining in the distributor would fail to irrigate anything and would be subject to evaporation and wind drift. This is not an efficient use of water. The placement of Stoddart's distributor in Sesser's irrigation system would be flagrantly wasteful and contrary to the water conservation purposes touted by Sesser's irrigation system (Sesser '438, Column 1, lines 35-42). The structure, purpose and function of Sesser's irrigation system clearly teaches away from Stoddart's egregious wastefulness of water and thus teaches away from such combination of references.

The structure, purpose and function of Stoddart's distributor is also undermined if the alleged combination is made. Stoddart's distributor teaches that surface tension allows the water to flow over the top and down the sides of the distributor to the pegs b where the surface tension creates fine streams of liquid. If Stoddart's distributor were placed in the furrows of Sesser's irrigation assembly, then obviously the ground or other structure would contact the sides of the distributor. The contact between the ground and the distributor breaks the surface tension of the water. Water no longer flows to the pegs b to create fine water streams. Water would merely

slosh over the sides of Stoddart's distributor when the distributor is full. The placement of Stoddart's distributor in Sesser's furrow irrigation system would prevent Stoddart's distributor from its intended function and, thus, is contrary to the teachings of Stoddart '795. For this additional reason, the references discourage any alleged combination of these two references.

Further, applicants respectfully submit that claim 33 should be allowed for another reason. The alleged combination of references –improper though it is– does not teach or suggest the present invention as set forth in claim 33. Even if one were to improperly pick or choose, from all the Stoddart '795 disclosure and apply it to Sesser '438, the structure of claim 33 still would not result. Claim 33 calls for a plurality of troughs having at least one wall adapted to engage the ground and defining a fluid passageway therethrough. Stoddart '795 does not disclose or suggest a trough which defines a fluid passageway therethrough for permitting water to flow from the trough into the ground, as recited in claim 33. The pegs b of Stoddart's distributor are completely closed off to any water flow whatsoever. Therefore, Stoddart's distributor fails to define a fluid passageway which permits water flow through the distributor, in contrast to claim 33.

It is further respectfully submitted that it would not be obvious to modify the alleged combination. In fact, Stoddart '795 teaches that flow of water occurs outside the distributor. Stoddart '795 works to deliver liquids onto the filter beds using surface tension along the exterior sides of the distributor to the pegs b. There is no motivation to modify Stoddart's distributor to provide a fluid passageway therethrough, in contrast to claim 33.

For the reasons stated above, applicants respectfully submit that Sesser '438 and Stoddart '795 are not properly combinable in the absence of the teaching supplied by applicants'

specification. It is submitted that the pending claims are not anticipated or rendered obvious in view of the cited references and that the rejection should be reconsidered and withdrawn. Claim 33 therefore should be allowed on these bases.

Dependent claims 34-36 and 38-44 depend directly or indirectly from independent claim 33 and are respectfully believed to be allowable over the cited references for the same reasons as stated above.

(B) Claim 45 is not obvious under 35 USC 103(a) over Sesser '438 in View of Stoddart '795.

In the Final Office Action, independent claim 45 was rejected on the same grounds as claim 33. Applicants respectfully submit that the alleged combination does not teach or suggest claim 45 for the same reasons as discussed above related to claim 33. Applicants reiterate the arguments stated above.

In particular, claim 45 calls for a plurality of water receiving receptacles adapted to engage the ground, having at least one wall and defining at least one fluid passageway therethrough. Sesser '438 fails to teach or suggest a water receiving receptacle apart from the furrows dug into the ground, and consequently, also fails to teach or suggest any water receiving receptacle which has at least one wall and which receptacle defines at least one passageway through its structure to permit water to flow from the water receiving receptacle into the ground. Stoddart '795 is not properly combinable with Sesser '438 because any combination is contrary to Sesser's overwhelming emphasis on water conservation. Any alleged combination would be subject to large evaporative water losses which is exactly what Sesser's irrigation system teaches against. Such combination is merely the result of hindsight reconstruction using applicants'

disclosure as a blueprint. Applicants' disclosure is improperly used as the sole grounds on which the combination of references is based. Further, even the alleged combination of references fails to teach or suggest any fluid passageway through the distributor, in contrast to claim 45. For these reasons, claim 45 is not obvious and the rejection as this claim is respectfully requested to be reversed.

(C) Claim 34 is allowable for another reason over Sesser '438 in view of Stoddart '795.

Although claim 34 is indicated as allowable, applicants respectfully submit that the reasons for allowance of this claim are not fully appreciated. Claim 34 includes a plurality of underground drains adapted for penetrating the ground. In claim 34, each of the plurality of underground drains defines at least one opening and the opening defines at least a portion of the fluid passageway through the trough for permitting water flow through the trough.

In the Final Office Action, even though claim 34 is indicated as containing allowable subject matter, the Examiner states, in part, that Stoddart discloses "a plurality of underground drains b." Although applicants appreciate the allowability of claim 34 on whatever basis it was given, applicants respectfully submit that claim 34 should be allowable for another reason because the above-discussed reasons discourage any combination of the cited references. The combination of references cannot render the underground drains obvious because such combination is improperly based on hindsight reconstruction using applicants' disclosure.

Further, even the alleged combination falls short of any teaching or suggestion which is comparable to the plurality of underground drains, as recited in claim 34. In Stoddart, the "elements b" which are referred to by the Examiner are nothing more than closed pegs b.

Stoddart's pegs lack any opening for permitting water flow through the distributor. The pegs are solid. As clearly understood by Stoddart's specification, each peg is closed either at its top or bottom end or both (lines 19-20). In this regard, the pegs define a structure which lacks an opening for permitting water flow through the distributor. Any water must enter and exit only through the top of the distributor. Absolutely no fluid flow is permitted through Stoddart's distributor. This is a further reason which distinguishes claim 34.

There is yet another reason that claim 34 distinguishes over the cited references. Stoddart's pegs b further do not define a structure which is suitable for penetrating the ground. In fact, the surface tension along the pegs b is broken if the pegs penetrate the ground. In this regard, Stoddart teachings would be undermined if Stoddart's pegs penetrated the ground and, as such, it would not be obvious to modify Stoddart to teach the underground drains of claim 34. Accordingly, applicants believe that the allowability of claim 34 should be fully appreciated based on these other reasons.

(D) Claim 46 is allowable for another reason over Sesser '438 in view of Stoddart '795.

Claim 46 is also believed to be allowable for the additional reasons as discussed above relative to claim 34. Claim 46 recites that the water receiving receptacle includes at least one underground drain which is adapted for penetrating the ground. The drain defines at least one opening. The opening of the drain defines at least a portion of one fluid passageway through the water receiving receptacle for permitting water flow through the water receiving receptacle. This structure is not found in the cited references. Claim 46 is therefore respectfully believed to be allowable for such additional reasons as discussed above.

(E) Claim 41 is not obvious under 35 USC 103(a) over Sesser '438 in view of Stoddart '795.

In the Final Office Action, Claim 41 also was rejected over the alleged combination of Sesser '438 and Stoddart '795. Claims 41 is directed to the embodiment of the trough shown in Figures 12 and 13 which shows the trough as a pipe 86. Claim 41 specifically recites that a weir 93 is mounted in the pipe. Stoddart '795 was relied upon by the Examiner as disclosing a weir. However, there is no such weir mounted in Stoddart's distributor.

If the Examiner interprets the sides or ends of Stoddart's distributor to define a weir, then this ignores the features as recited by claim 41. The sides and ends of Stoddart's distributor define the outer boundaries of the distributor rather than any structure mounted in the trough, as recited in claim 41. Stoddart's distributor provides no suggestion for any structures mounted in its interior for controlling liquid flow. Instead, Stoddart focuses on the flow of water outside the distributor by surface tension. Stoddart is not concerned with controlling the liquid flow inside the distributor. There is no need to control the liquid within the distributor. Stoddart is entirely concerned with the rate of flow of liquid outside the distributor, not the internal flow within the distributor. Therefore, claim 41 is believed to be separately distinguishable on this basis and the rejection regarding this claim should be reversed.

(F) Claim 44 is not obvious under 35 USC 103(a) over Sesser '438 in view of Stoddart '795.

Claim 44 also was rejected on the same basis as claim 41. Claim 44 recites that the irrigation assembly further comprises selected one of a dam or a weir positioned within the trough for controlling water flow within the trough. Similar to the above discussion of claim 41,

Stoddart does not disclose any structures – such as a dam or a weir – mounted within the boundaries of its distributor. Therefore, claim 44 also is not obvious and the rejection as to this claim should be reversed.

(G) Claim 33 should be considered a generic claim such that claim 37 should not have been withdrawn as directed to a non-elected invention.

In the Office Action of October 2, 2002, the Examiner imposed several restriction requirements. The first restriction required applicants to elect between the following groups of claims: (I) Claims 1-26 and 33-44 which are directed to an irrigation assembly; and (II) Claims 27-32 which are directed to a method of operating an irrigation assembly. Of the Group I claims, the Examiner further required applicants to elect certain claims based on the Examiner's position that claimed invention was comprised of four different patentably distinct species: Species A in Figures 1-5; Species B in Figures 6-11; Species C in Figures 12-13 and Species D in Figure 14.

In order to further prosecution, applicants elected Species C in Figures 12-13 and claims 33-36 and 38-44 which read on these figures. The remaining claims 1-32 and 37 were withdrawn as directed to non-elected inventions. As to claim 37, this claim depends directly from elected claim 33 but was required to be withdrawn because this claim reads on Species D in Figure 14 which was not elected. This election was required of applicants prior to substantive examination of the claims only in the event no generic claim was allowable.

Applicants respectfully submit that claim 33 is allowable and is a generic claim as to Species C and D in Figures 12-14. In this regard, even though claim 37 was previously withdrawn, this claim should be rejoined with the elected claims upon reversal of the rejection of claim 33 in accordance with the arguments presented above. Accordingly, upon allowance of

claim 33, all of its dependent claims 34-44 including previously withdrawn claim 37 should also be allowed.

(H) Claim 45 should be considered a generic claim such that claims 48 and 49 should not have been withdrawn as directed to a non-elected invention.

In the Amendment mailed September 23, 2003, applicants added new claims 45-50. Of these claims, claim 45 is independent and claims 46-50 depend either directly or indirectly from claim 45. Claim 45 is respectfully submitted as an allowable generic claim which reads on each of the four species, Species A, B, C and D identified in Figures 1-14. In the Examiner's October 16, 2003 Office Action, claims 48 and 49 were indicated as withdrawn from consideration as being directed to a non-elected invention. Claims 48 and 49 read on Species D and C, respectively. However, no such withdrawal from consideration should take place due to the allowability of claim 45, as presented above.

Claim 45 is an allowable generic claim because it can be read to broadly encompass each of the structures described and shown in Figures 1-14. In particular, the claimed water receiving receptacles read on the plurality of stationery targets or dishes 38 and 66 shown in Figures 1-11 and the troughs 86 and 90 shown in Figures 12-14. As shown in Figures 3-14, each of these structures are adapted to engage the surface of the ground (paragraph 31, lines 1-4; paragraph 38; lines 7-8; paragraph 43, lines 5-6; paragraph 47, lines 1-4). Each dish and trough defines a water receiving receptacle having at least one wall. Each receptacle clearly receives water from the drop tube assembly and defines at least one fluid passageway therethrough which permits water to flow from the water receiving receptacle into the ground. Accordingly, applicants

respectfully submit that dependent claims 48 and 49 should be rejoined and allowed based upon the allowability of generic claim 45.

Applicants further submit that dependent claim 49 should not be withdrawn in any event.

Claim 49 recites that at least one wall of the water receiving receptacle is substantially circular with a slot located in the top thereof. Clearly, claim 49 reads on the elected embodiment, Species C, shown in Figures 12-13, which shows the trough 86 as a pipe with a slot 88. Accordingly, claim 49 should not have been withdrawn and should be rejoined with the elected claims for this additional reason.

Conclusion

For the reasons set forth above, applicants respectfully submits that the Claims 33-50 are allowable and the decision of the Examiner rejecting these claims or requiring withdrawal of these claims should be reversed.

Respectfully submitted,



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(9) APPENDIX

CLAIMS

1. (Withdrawn) An irrigation assembly comprising a main pipeline connected to a water supply, the pipeline being supported at intervals by mobile towers, and a plurality of collectors in fluid communication with the pipeline for receiving water from the pipeline, each collector having walls defining a water inlet and a water retaining cavity.
2. (Withdrawn) The irrigation assembly of claim 1 further comprising a plurality of drop tube assemblies attached to main pipeline and extending downwardly therefrom, the drop tube assemblies being in fluid communication with the main pipeline.
3. (Withdrawn) The irrigation assembly of claim 2 wherein the drop tube assembly comprises a drop tube attached to the main pipeline on one end, a pressure regulator on the other end of the drop tube, a nozzle attached to the downstream end of the pressure regulator, and wherein the collector is attached to one of the drop tube or the nozzle.
4. (Withdrawn) The irrigation assembly of claim 1 wherein each collector further comprises a water outlet and a valve attached to the collector, the valve being movable between a closed position in which water is prevented from flowing out the outlet and an open position in which water is permitted to flow out the outlet.

5. (Withdrawn) The irrigation assembly of claim 1 wherein the collector is pivotally mounted to the irrigation assembly about a top end of the collector.

6. (Withdrawn) The irrigation assembly of claim 5 wherein the collector top end is mounted on a spindle.

7. (Withdrawn) The irrigation assembly of claim 1 wherein the movement of the collectors over the ground defines a plurality of collector paths and further comprising a plurality of stationary targets positioned on the ground in at least one collector path.

8. (Withdrawn) The irrigation assembly of claim 7 wherein the target is a dish, each dish having an open upper end and a drain, the drain being positioned at least partially within the ground.

9. (Withdrawn) The irrigation assembly of claim 8 wherein the drain has a plurality of holes therein.

10. (Withdrawn) The irrigation assembly of claim 7 wherein each target has a valve actuator.

11. (Withdrawn) The irrigation assembly of claim 7 wherein the target is a hole.

12. (Withdrawn) The irrigation assembly of claim 7 wherein the target is a channel.

13. (Withdrawn) The irrigation assembly of claim 7 wherein the target has a mesh.

14. (Withdrawn) The irrigation assembly of claim 7 wherein the target has aggregate therein.

15. (Withdrawn) The irrigation assembly of claim 10 wherein each collector further comprises a water outlet and a valve attached to the collector, the valve being movable between a closed position in which water is prevented from flowing out the outlet and an open position in which water is permitted to flow out the outlet and wherein said valve actuator is engageable with said valve to move it to said open position to allow the water within the collector to flow into the dish.

16. (Withdrawn) The irrigation assembly of claim 8 wherein the dish forms a funnel.

17. (Withdrawn) The irrigation assembly of claim 8 wherein the dish holds approximately 3 gallons.

18. (Withdrawn) The irrigation assembly of claim 2 wherein a moisture probe assembly is mounted to the drop tube assembly to provide for testing the moisture level of the ground when the irrigation system is in use.

19. (Withdrawn) An irrigation assembly comprising a main pipeline connected to a water supply, the pipeline being supported at intervals by mobile towers, a plurality of drop tube assemblies downwardly extending from the main pipeline, a collector associated with each drop tube assembly and in fluid communication therewith for receiving water from the pipeline, each collector having walls defining a water inlet and a water retaining cavity, the movement of the collectors over the ground defining a plurality of collector paths and a plurality of stationary targets positioned on the ground with at least one target in each collector path for receiving water from the collector.

20. (Withdrawn) The irrigation assembly of claim 19 wherein each collector further comprises a water outlet and a valve attached to the collector, the valve being movable between a closed position in which water is prevented from flowing out the outlet and an open position in which water is permitted to flow out the outlet.

21. (Withdrawn) The irrigation assembly of claim 20 wherein each collector has an open top portion, and a collector bottom portion has the valve located therein.

22. (Withdrawn) The irrigation assembly of claim 20 wherein the target is a dish, each dish having an open upper end with a valve actuator located thereon, said valve being engageable by the valve actuator to an opened position to allow the water within the collector to be received by the dish.

23. (Withdrawn) The irrigation assembly of claim 22 wherein each dish has a drain which is positioned at least partially within the ground.

24. (Withdrawn) The irrigation assembly of claim 23 wherein the dish drain has a plurality of holes located therein and positioned underground.

25. (Withdrawn) The irrigation assembly of claim 19 wherein a moisture probe assembly is mounted to the irrigation assembly.

26. (Withdrawn) A movable irrigation assembly comprising a main pipeline supported at intervals by mobile towers, a plurality of drop tube assemblies connected to the main pipeline section, a plurality of stationary targets positioned on the ground, and a plurality of moisture probe assemblies being mounted to one of said irrigation assembly and said targets for selectively testing the soil moisture level during operation thereof.

Claims 27 - 32 (Cancelled).

33. (Previously presented) An irrigation assembly comprising a main pipeline connected to a water supply, the pipeline being supported at intervals by mobile towers, a plurality of drop tube assemblies extending downwardly from the main pipeline, the movement of the drop tube assemblies over the ground defining paths, and a plurality of stationary troughs positioned at least partially above the surface of the ground and at least partially within the paths for receiving

water from the drop tube assemblies, each trough having at least one wall which is adapted to engage a surface of the ground, and each trough defining a fluid passageway therethrough which permits water to flow from the trough into the ground.

34. (Previously presented) The irrigation assembly of claim 33 wherein each trough has a plurality of underground drains adapted for penetrating the ground, each drain being located at spaced locations along the trough and defining at least one opening, which opening of the drain defines at least a portion of the fluid passageway through the trough therethrough for permitting water flow through the trough.

35. (Original) The irrigation assembly of claim 34 wherein each underground drain has an inlet in fluid communication with the trough and at least one outlet located within the ground.

36. (Original) The irrigation assembly of claim 33 wherein the shape of each trough generally follows the path of a drop tube assembly.

37. (Withdrawn) The irrigation assembly of claim 33 wherein at least one trough has a bottom surface which is substantially planar with upwardly extending side edges.

38. (Original) The irrigation assembly of claim 33 wherein at least one trough is a pipe with a slot located in the top thereof.

39. (Original) The irrigation assembly of claim 38 wherein the slot is longitudinally positioned along the pipe.

40. (Original) The irrigation assembly of claim 38 wherein the trough further comprises a main pipe section and tributaries in fluid communication with the main pipe section, each tributary having at least one drain.

41. (Original) The irrigation assembly of claim 38 further comprising a weir mounted in the pipe.

42. (Original) The irrigation assembly of claim 33 wherein the drop tube assembly further comprises a hose having an inlet being in fluid communication with the pipeline and an outlet which directs water into the trough.

43. (Original) The irrigation assembly of claim 42 wherein at least one trough is a pipe with a slot located in the top thereof.

44. (Original) The irrigation assembly of claim 33 further comprising selected one of a weir and a dam being positioned within the trough for controlling water flow therein.

45. (Previously presented) An irrigation assembly comprising a main pipeline connected to a water supply, the pipeline being supported at intervals by mobile towers, a plurality of drop

tube assemblies extending downwardly from the main pipeline, the movement of the drop tube assemblies over the ground defining paths, a plurality of water receiving receptacles adapted to engage the surface of the ground, each water receiving receptacle having at least one wall, and each water receiving receptacle defining at least one fluid passageway therethrough which permits water to flow from the water receiving receptacle into the ground.

46. (Previously presented) The irrigation assembly of claim 45 wherein each water receiving receptacle further includes at least one underground drain a plurality of underground drains which are adapted for penetrating the ground and which are in fluid communication with the passageway, the each drain defining at least one opening, which opening of the drain defines at least a portion of one fluid passageway through the water receiving receptacle therethrough for permitting water flow through the water receiving receptacle.

47. (Previously presented) The irrigation assembly of claim 46 wherein each underground drain has an inlet in fluid communication with the passageway and at least one outlet located within the ground.

48. (Withdrawn) The irrigation assembly of claim 45 wherein at least one wall of the water receiving receptacle is substantially planar.

49. (Withdrawn) The irrigation assembly of claim 45 wherein at least one wall of the water receiving receptacle is substantially circular with a slot located in the top thereof.

50. (Previously presented) The irrigation assembly of claim 45 wherein the water receiving receptacle forms a funnel.